

1 **WHAT IS CLAIMED IS:**

2 1. A lock assembly comprising:

3 a housing having

4 an outer surface;

5 a proximal end;

6 a central hole with an inner surface defined through the housing;

7 multiple sets of pin holes defined in the housing and

8 communicating with the central hole, and each set of pin holes having three pin

9 holes arranged in a curve along the outer surface of the housing to achieve three

10 rows of pin holes in the outer surface of the housing, wherein the three holes of

11 the sets of pin holes in the housing are respectively referred to as a changing

12 position, an open position and a lock position of the lock assembly;

13 two main adjusting holes radially defined in the housing,

14 communicating with the central hole and respectively referred to as the changing

15 position and the open position; and

16 two sub-adjusting holes radially defined in the housing,

17 communicating with the central hole and respectively referred to as the changing

18 position and the open position;

19 a cylinder rotatably received in the central hole of the housing along a

20 first rotating direction and a second rotating direction opposite to the first

21 rotating direction and having

22 an outer surface abutting with the inner surface of the central hole

23 in the housing to define a rotation interface between the housing and the

24 cylinder;

1 a proximal end;

2 a key hole defined in the proximal end;

3 a main adjusting hole defined in the outer surface of the cylinder,

4 communicating with the key hole and selectively aligning with one of the main

5 adjusting holes in the housing when the cylinder is rotated relative to the

6 housing;

7 a main adjusting cavity defined in the outer surface of the cylinder,

8 communicating with the main adjusting hole in the cylinder and extending along

9 the first rotating direction;

10 a sub-adjusting hole defined in the outer surface of the cylinder,

11 communicating with the key hole and selectively aligning with one of the sub-

12 adjusting holes in the housing when the cylinder is rotated relative to the

13 housing;

14 a sub-adjusting cavity defined in the outer surface of the cylinder,

15 communicating with the main adjusting hole in the cylinder and extending along

16 the second direction; and

17 multiple pin holes defined in the outer surface of the cylinder,

18 communicating with the key hole, arranged in a row and selectively aligned with

19 one row of the pin holes in the housing when the cylinder is rotated relative to the

20 housing;

21 a main adjusting pin assembly mounted in the main adjusting holes in

22 the housing and the cylinder to block the rotation interface at the main adjusting

23 holes in the housing and the cylinder when a main key is inserted into the key

24 hole in the cylinder at the open position of the lock assembly;

1 a sub-adjusting pin assembly mounted in the sub-adjusting holes in the
2 housing and the cylinder to block the rotation interface at the sub-adjusting holes
3 in the housing and the cylinder when a sub key is inserted into the key hole in the
4 cylinder at the changing position of the lock assembly; and

5 multiple locking pin assemblies mounted respectively in the set of pin
6 holes in the housing and a corresponding pin hole in the cylinder.

7 2. The lock assembly as claimed in claim 1, wherein the main adjusting
8 pin assembly comprises

9 multiple pin blocks received in the main adjusting hole in the cylinder
10 and selectively received in the main adjusting holes in the housing; and

11 two springs received respectively in the main adjusting holes in the
12 housing to respectively push against the pin blocks received in the main
13 adjusting holes in the housing.

14 3. The lock assembly as claimed in claim 2, wherein the pin blocks have
15 different thicknesses.

16 4. The lock assembly as claimed in claim 2, wherein the main adjusting
17 pin assembly further has a cap mounted respectively between each respective
18 spring and a corresponding pin block to press against the corresponding pin
19 block.

20 5. The lock assembly as claimed in claim 1, wherein the sub-adjusting
21 pin assembly comprises

22 multiple pin blocks received in the sub-adjusting hole in the cylinder and
23 selectively received in the sub-adjusting holes in the housing; and

24 two springs received respectively in the sub-adjusting holes in the

1 housing to respectively push against the pin blocks received in the sub-adjusting
2 holes in the housing.

3 6. The lock assembly as claimed in claim 5, wherein the pin blocks have
4 different thicknesses.

5 7. The lock assembly as claimed in claim 5, wherein the sub-adjusting
6 pin assembly further has a cap mounted respectively between each respective
7 spring and a corresponding pin block to press against the corresponding pin
8 block.

9 8. The lock assembly as claimed in claim 1, wherein each locking pin
10 assembly comprises

11 multiple pin blocks received in one of the pin holes in the cylinder and
12 selectively received in a corresponding set of pin holes in the housing; and

13 three springs received respectively in the corresponding set of the pin
14 holes in the housing to respectively push against the pin blocks received in the
15 pin holes in the housing.

16 9. The lock assembly as claimed in claim 8, wherein the pin blocks have
17 different thicknesses.

18 10. The lock assembly as claimed in claim 8, wherein the lock pin
19 assembly further has a cap mounted respectively between each respective spring
20 and a corresponding pin block to press against the corresponding pin block.

21 11. The lock assembly as claimed in claim 1, wherein the housing further
22 comprises multiple longitudinal recesses longitudinally defined in the outer
23 surface of the housing and each having a bottom;

24 the main adjusting holes, the sub-adjusting holes and the pin holes in the

1 housing are defined in the bottoms of the longitudinal recesses; and
2 multiple lids are mounted respectively in the longitudinal recesses to
3 close the main adjusting holes, the sub-adjusting holes and the pin holes in the
4 bottoms of the recesses.

5 12. The lock assembly as claimed in claim 1, wherein the housing
6 further has an opening with an inner surface defined in the proximal end and a
7 curved stop formed on the inner surface of the opening; and

8 the cylinder further has a stub protruding from the outer surface of the
9 cylinder, received in the opening in the housing and selectively abutting against
10 the stop in the opening.